Improving Care For Injured Soldiers: Musculoskeletal Treatment Guideline Development & Implementation

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Objectives

Presentation participants will be able to:

- **recognize at least 2 reasons why musculoskeletal treatment guidelines are needed;**
- **describe similarities between soldier and athlete injury care;**
- **appreciate the use of The Iowa Model of Evidence-Based Practice to Promote Quality Care in the development & implementation of treatment guidelines; and**
- **discuss pros and cons of musculoskeletal treatment guidelines developed in this project.**

Principal Investigator

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Project Director

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Project Specific Aim

Develop standard treatment guidelines for common musculoskeletal injuries.

Background Research

- **Active duty personnel are the least satisfied of all beneficiaries.[1,2]**
- **A previous study of active duty dissatisfaction with military health care had startling findings.[1]**
  - **Soldiers expressed concern about barriers to diagnosis and treatment for their injuries.**
  - **These barriers resulted in incomplete recovery and a delay in return to duty.**

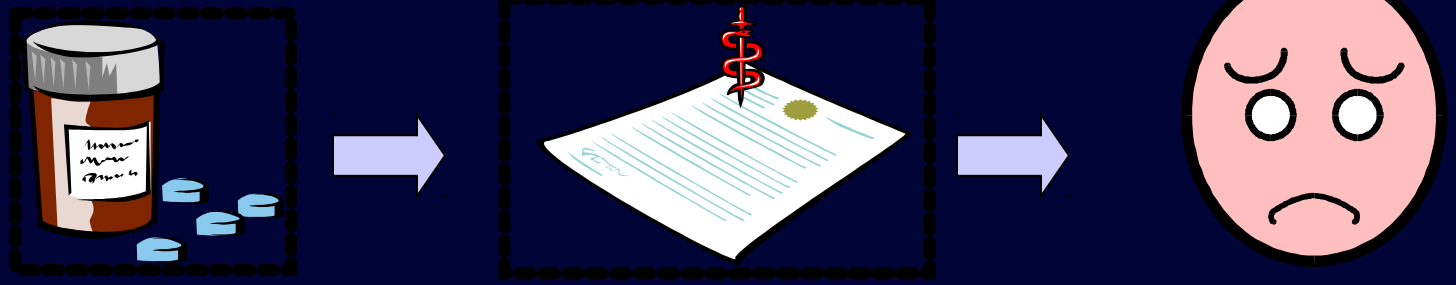
[1]Jennings, Loan & Wilson, 2001; Report to Congress, 200
[2]Jennings & Loan, 2000.

Two Paths to Soldier Injury Care

Accurate Diagnosis & Treatment

Return to Duty

Satisfaction



Motrin

Medical Profile

Dissatisfaction

AD Musculoskeletal Injuries

- **Musculoskeletal injuries in AD personnel:**
  - **Over 1.5 million outpatient visits at fixed MTFs in FY 2000.[3]**
  - **leading cause of disability for Army personnel. [4]**
  - **account for 53% of all Army disabilities.[4]**

[3]USACHPPM, 2001.
[4]Atlas of Injuries in the U.S. Armed Forces, 1999.

Research Utilization Project

- **Project Framework**
  - Iowa Model of Evidence-Based Practice to Promote Quality Care
- **Sites**
  - Ft. Lewis
  - Madigan Army Medical Center
- **Target Population**
  - ~ 17,000 AD soldiers
  - ~ 3,000 health care personnel

Sports Medicine Care Models Are Applicable to Injured AD Personnel

- **Sallis and Massimino (1995)**
  - Treatment guidelines standardized and streamlined sports medicine care
- **Linenger & West (1992)**
  - U.S. Marine recruits (basic training)
  - Musculoskeletal injury incidence of 9.4 cases/100 recruits

Iowa Model of Evidence-Based Practice to Promote Quality Care

Methods & Evaluation: *Preparation*

- **Develop An Action Plan**
  - **First Step- identify the most common Musculoskeletal injuries**
  - **Expert panel refined list to 23 common injuries**
- **Form A Team**
  - **20 Member interdisciplinary team from Ft. Lewis & MAMC**

23 Standardized Musculoskeletal Treatment Guidelines

- Acute Low Back Pain
- Ankle Sprain
- Anterior Knee Pain
- Biceps Tendonitis
- Carpal & Cubital Syndrome
- Cervical Pain
- Finger & Thumb Sprains
- Iliotibial Band Syndrome
- Knee Pain Traumatic
- Lateral Epicondylitis
- Lower Leg Muscle Cramps
- Lower Leg Muscle Strains
- Lumbar Disc Syndrome
- Medial Epicondylitis
- Neuropathy Entrapment
- Plantar Fasciitis
- Quadriceps Contusions
- Shin Splints
- Shoulder Bursitis,
- Tendonitis & Impingement
- Shoulder Dislocation
- Shoulder Pain
- Symptomatic Flat Feet
- Wrist Injuries

Methods & Evaluation: *Preparation*

- **Find & Critique the Evidence**
  - **Types of evidence used:**
    - **VA/DoD & professional society guidelines**
    - **Comprehensive systematic reviews**
    - **Research**
    - **Scientific principles**
    - **Expert opinion**
  - **Strength & quality evaluation**
  - **Evidence synthesized**
- **Is There Sufficient Research To Guide Practice?**

Methods & Evaluation: *Implementation*

- **Guideline Format**
  - **Definition**
  - **Diagnosis & Management**

Shoulder Pain Guideline

SHOULDER BURSITIS/TENDONITIS/IMPINGEMENT

Diagnosis/Definition

• Shoulder pain arising either with or without trauma in which the active elevation of the shoulder greater than 70-90 degrees is problematic but passive range of motion (ROM) is essentially normal.

Initial Diagnosis and Management

• History and Physical exam.

• Plain radiographs not required unless subacromial DJD suspected.

• NSAIDs.

• Appropriate activity limitations (i.e. no overhead activities)

• Encourage active ROM for the shoulder in all planes.

Methods & Evaluation: *Implementation*

- **Guideline Format**
  - **Definition**
  - **Diagnosis & Management**
  - **Profile Indications & Specifications**

Shoulder Pain Guideline

SHOULDER BURSITIS/TENDONITIS/IMPINGEMENT

Ongoing Management and Objectives

· Expect resumption of active ROM with minimal pain after 7-14 days

· If pain and/or limitation of motion does not resolve then:

- o Obtain plain radiographs
- o Trial of different NSAID
- o Do not allow "frozen shoulder" to develop

Indication a profile is needed

· Any limitations that affect strength, range of motion, and general efficiency of upper arm, shoulder girdle, and upper back, including cervical and thoracic vertebrae.

· Slightly limited mobility of joints, muscular weakness, or other musculoskeletal defects that may prevent

Methods & Evaluation: *Implementation*

- **Guideline Format**
  - **Definition**
  - **Diagnosis & Management**
  - **Profile Indications & Specifications**
  - **Education & Exercises to Enhance Recovery**

Biceps Tendonitis Guideline

Patient Education

PATIENT INFORMATION

What is biceps tendonitis?

Tendons are connective tissue bands that attach muscles to bones. The biceps muscle is located in the front part of the upper arm and attaches at the elbow and in two places at the shoulder. Biceps tendonitis, also called bicipital tendonitis, is inflammation that causes pain in the front part of the shoulder or upper arm.

How does it occur?

Biceps tendonitis occurs from overuse of the arm and shoulder or from an injury to the biceps tendon.

What are the symptoms?

You feel pain when you move your arm and shoulder, especially when you move your arm forward over shoulder height. You feel pain when you touch the front of your shoulder.

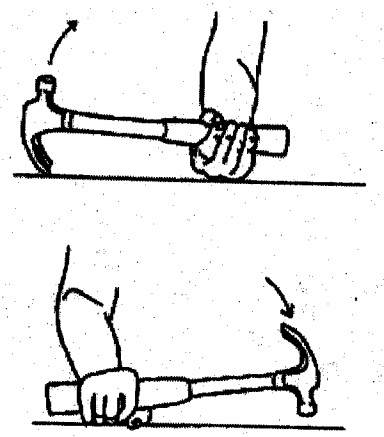
How is it diagnosed?

Your health care provider will examine your arm and shoulder for tenderness along the biceps muscle and biceps tendons.

Biceps Tendonitis Guideline

Exercises to Enhance Recovery

BICEPS TENDONITIS



Pronation and supination strengthening

Hold a hammer in your hand. With your elbow bent at a 90- degree angle, move your forearm so your palm faces up and then faces down. Hold each position 10 seconds. Repeat palm up and palm down 10 times each. Do 3 sets.

Methods & Evaluation: *Implementation*

- **Guideline Format**
  - **Definition**
  - **Diagnosis & Management**
  - **Profile Indications & Specifications**
  - **Education & Exercises to Enhance Recovery**
  - **Completed Physical Profile Form**

Biceps Tendonitis DA FORM 3349

PHYSICAL PROFILE

For use of this form, see AR 40-501; the proponent agency is the Office of The Surgeon General

1. MEDICAL CONDITION: BICEPS TENDONITIS

2.

P	U	L	H	E	S

3. ASSIGNMENT LIMITATIONS ARE AS FOLLOWS
WEEKS 1 -4 , NO UPPER BODY PT REQUIRING PULLS, NO OVERHEAD ACTIVITIES, NO LIFTING WITH AFFECTED ARM, NO LOW CRAWL, AND NO STRETCHER DUTY WITH AFFECTED ARM.

CODES

4. THIS PROFILE IS ☐ PERMANENT ☒ TEMPORARY EXPIRATION DATE:

5. THE ABOVE STATED MEDICAL CONDITION SHOULD NOT PREVENT THE INDIVIDUAL FROM DOING THE FOLLOWING ACTIVITIES

- ☒ Groin Stretch
- ☒ Hip Raise
- ☒ Knee Bender
- ☐ Side-Straddle Hop
- ☒ High Jump
- ☒ Jogging in Place
- ☒ Thigh Stretch
- ☒ Quads Stretch & Bal.
- ☒ Calf Stretch
- ☒ Long Sit
- ☒ Hamstring Stretch
- ☒ Hams. & Calf Stretch
- ☒ Lower Back Stretch
- ☒ Single Knee to Chest
- ☒ Straight Leg Raise
- ☐ Elongation Stretch
- ☒ Turn and Bounce
- ☒ Turn and Bend
- ☐ Neck & Shoulder Stretch
- ☐ Upper Back Stretch
- ☐ Chest Stretch
- ☐ One-Arm Side Stretch
- ☐ Two-Arm Side Stretch
- ☐ Side Bender
- ☐ Neck Stretch
- ☒ Ankle Stretch
- ☒ Hip Stretch
- ☐ Upper Body Wt Trng
- ☒ Lower Body Wt Trng
- ☐ All

6. AEROBIC CONDITIONING EXERCISES

- ☒ Walk at Own Pace and Distance
- ☒ Run at Own Pace and Distance
- ☒ Bicycle at Own Pace and Distance
- ☐ Swim at Own Pace and Distance
- ☒ Walk or Run in Pool at Own Pace

- ☐ Unlimited Walking
- ☐ Unlimited Running
- ☐ Unlimited Bicycling
- ☐ Unlimited Swimming

- ☐ Run at Training Heart Rate for ____ Min.
- ☐ Bicycle at Training Heart Rate for ____ Min.
- ☐ Swim at Training Heart Rate for ____ Min.

7. FUNCTIONAL ACTIVITIES

- ☐ Wear Backpack (40 Lbs.)
- ☒ Wear Helmet
- ☐ Carry Rifle
- ☐ Fire Rifle

With Hearing Protection

- ☒ KP/Mopping/Mowing Grass
- ☒ Marching Up to 2 Miles
- ☒ Lift Up to 15 Pounds
- ☐ All

PHYSICAL FITNESS TEST

- ☒ Two Mile Run
- ☐ Push-Ups
- ☐ Sit-Ups
- ☒ Walk
- ☐ Swim
- ☒ Bicycle

8. TRAINING HEART RATE FORMULA

MALES 220 FEMALES 225

MINUS (-) AGE
MINUS (-) RESTING HEART RATE
TIMES (X) % INTENSITY
PLUS (+) RESTING HEART RATE

50% EXTREMELY POOR CONDITION
60% HEALTHY, SEDENTARY INDIVIDUAL
70% MODERATELY ACTIVE, MAINTENANCE
80% WELL TRAINED INDIVIDUAL .

9. OTHER

Methods & Evaluation: *Implementation*

- **Guideline Format**
  - **Definition**
  - **Diagnosis & Management**
  - **Profile Indications & Specifications**
  - **Education & Exercises to Enhance Recovery**
  - **Completed Physical Profile Form**
  - **References**

Methods & Evaluation: *Implementation*

- **Pilot The Changes In Practice**
  - **End-user evaluations**
- **Determine If The Guidelines Were Appropriate For Adoption Into Practice**
  - **Command buy in & approval**

Methods & Evaluation: *Implementation*

- **Institute The Changes In Practice**
  - **Collated into workbooks**
  - **Placed on website**
  - **Prepared in PDA format**
  - **Local staff education**
- **100 workbooks distributed in fall FY03**

Guideline Evaluation

- **Valued & used by providers**
- **Overwhelming requests providers & medics**
- **I Corps Surgeon & MAMC Commander approved & funded mass production**
- **Excellent verbal evaluations**

Evaluation

- **Future Evaluates Planned**
  - **Records review to determine the extent of guideline usage in practice.**
  - **Pilot test to explore a soldier injury intervention that uses the guidelines as an outline for injury care.**
  - **Interview injured soldiers regarding their perceptions of guideline use.**

Guideline Project Summary

- **Guideline development and implementation were a success.**
- **Should improve care for injured soldiers**
- **Support DoD best practice initiatives**
- **Future evaluations will determine whether guidelines improve resource & patient outcomes.**

Questions ?

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